Northern Ireland's Property Market Crisis:

Insights from Minsky's Financial Instability Hypothesis

Abstract

The financial crisis of 2007 has shown that standard mainstream macroeconomic models underpinned by general equilibrium theory fail to anticipate, explain and provide guidance on how to respond to such events (Stiglitz, 2011). Evidence in the Northern Ireland context has further suggested that applying these models to property markets may be inappropriate given the underlying statistical properties of these time series (Gallagher et al., 2015). These issues combined suggest that there may be merit in examining cases of financial crises through alternative theoretical frameworks and in adopting a more pluralist approach. With this in mind, this paper investigates whether Minsky's (1975, 1986, 1992) Financial Instability Hypothesis can assist in understanding the recent property market crisis in Northern Ireland, which was severe by both national and international standards. Using qualitative evidence to analyse the behaviours of borrowers represented by property developers and lenders represented by banks over the course of the business cycle, this paper assesses the relevance of Minsky's arguments. The findings show that Minsky's Financial Instability Hypothesis explains the incidents observed in NI's property market in recent years.

Key words: Hyman Minsky; business cycles; financial instability hypothesis; Northern Ireland; property crisis

JEL Codes: B50; G01; E32

1. Introduction

There has been much criticism of the failure of standard mainstream macroeconomic models to predict and explain the recent crisis of 2007 (Krugman, 2009; Dow, 2012; Keen, 2013). The main problems stem from their microeconomic foundations, which, being underpinned by neoclassical theory, typically assume that individuals behave rationally and that markets are inherently stable. Despite a large body of evidence illustrating that individuals and markets often behave in a manner inconsistent with the standard mainstream view, much of recent macroeconomic modelling continues to preclude this (Stiglitz, 2011). By their very nature, these models do not anticipate large economic fluctuations and have limited capacity when it comes to explaining them. Crisis periods – if they can occur- are viewed as only temporary departures from equilibrium and it is assumed that they arise from exogenous shocks. Therefore, as became apparent when the recent crisis broke, standard mainstream macroeconomic models are of limited value in predicting and explaining such events. Subsequently, there has been a revival of interest in alternative theories and models of financial crises.

Most notably in recent years many references have been made to the works of Kindleberger (1978) and Minsky (1975; 1986; 1992). Kindleberger's (1978) theory of financial crises argues that individuals and markets may suffer from episodes of irrationality which can cause temporary deviations from fundamentals. Kindleberger's (1978, p.6) theory could be viewed as an extension of a neo-Keynesian approach to include temporary episodes of disequilibrium. According to Kindleberger (1978), in most periods traditional mainstream macro-modelling techniques remain appropriate. Minsky's (1975; 1986; 1992) Financial Instability Hypothesis (FIH) on the other hand adopts more of a new-Keynesian viewpoint. It maintains that financial crises arise endogenously due to pro-cyclical movements in the supply of credit and argues that markets in capitalist economies are inherently unstable. Consequently, according to Minsky (1975; 1986; 1992) classical economics and associated deductive quantitative techniques are of limited value. Minsky's theory thus implies that there is a need to adopt a more pluralist approach when examining financial crises.

This paper builds on this emerging body of work focusing on alternative theories of financial crises. It shows through qualitative insights that Minsky's FIH explains the incidents observed in the Northern

Ireland (NI) property market in recent years. As detailed below, the recent crisis in NI was one of the most severe experienced by an UK region and it represents one of the worst documented internationally (Ramsey, 2015). Despite this it has received relatively little attention in the academic literature. This paper thereby makes a number of important contributions to the existing literature. Firstly, the behaviours of key economic agents over the course of the business cycle are examined through the lens of Minsky's theory of financial crises and key behavioural factors that could be used as policy triggers in future are identified. NI's property market crisis is further understood and it enables us to potentially avoid repetition by drawing wider lessons from the experience. Secondly, by showing that Minsky's FIH could have explained the incidents observed in NI's property market, it lends further support to the growing body of work that advocates the need to adopt alternative approaches to mainstream economic thinking, to pre-empt future financial crises (Colander et al., 2009; Lawson, 2009; Dow et al., 2012).

The paper proceeds as follows. Section 2 provides a brief background to the NI property market crisis. Section 3 summarises mainstream economic theories of financial crises and then outlines the leading alternative theories of financial crisis of Kindleberger and Minsky. Section 4 details the methodology. Section 5 presents the findings and these are discussed in light of Minsky's FIH in Section 6. The final section, Section 7, then provides some concluding remarks.

2. Background

NI is the smallest region of the United Kingdom (UK)[1] and the only region that shares a land border with the Republic of Ireland (ROI) rather than mainland UK. Historically the region was characterised by political instability and suffered economically due to the decline of traditional industry and difficulties in attracting foreign investment to the region (Ruane and Todd, 1996). The establishment of a new devolved political regime in the 1990's brought peace to the region (Mulholland, 2003). This coupled with more favourable macroeconomic conditions meant that the NI economy performed relatively well from the 1990's onwards.

NI has traditionally boasted high levels of home ownership (73% at its peak in 2003 (NIHE, 2015)) and like all other regions of the UK it has been negatively affected by the recent property market crisis of

2007. Yet the experience of NI has been distinct in comparison to the other regions of the UK[2]. As Gibb et al. (2012) note during the upturn, specifically between 2005 Q2 to 2007 Q3, house price growth in the UK was circa 17%, while during the same period in NI house prices grew by circa 95%. Consequently, the downturn was also more pronounced in the region with all indices indicating peak-to-trough (2007 Q3-2013 Q1) declines of over 40%, with some depicting over 50%[3] (Ramsey, 2015). A decline of this magnitude was unprecedented in the UK context prior to this; it represents one of the worst documented internationally. Reinhart and Rogoff (2009) find from their analysis of past house price crashes an average peak-to-trough decline of 35.5%. Their findings illustrate the severity of the case and place the NI experience amongst one of the worst house price declines recorded.

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Evidence has also shown that during the recent property market bubble house prices in NI where most likely explosive and thus departed from strict martingale behaviour that is typically present during normal market conditions (Gallagher et al., 2015). The presence of such non-standard statistical properties means that conventional econometric approaches may not be appropriate to analyse the case. For example, co-integration analysis, a commonly employed approach when estimating long-run relationships (equilibrium) and short run adjustments (disequilibrium) among macroeconomic variables implies that a long-run economic relationship exists between two co-integrated variables and that it remains constant over the sample period (Engle and Granger, 1987; Engle and Yoo, 1987; Johansen, 1988). However, the presence of explosive behaviour like that documented in the case of NI, indicates that such a long run equilibrium relationship may not exist. Therefore, estimating a co-integration based model may lead to incorrect conclusions being drawn regarding the existence of relationships between variables when it does not (Phillips and Lee, 2016). At a general level, the unstable nature of housing markets can also be seen through a simple examination of historical long run averages in such markets. As Knoll et al. (2017) show many housing markets globally show signs of increasing volatility in recent years. This likely instability in the market reinforces the need to adopt an alternative approach when examining the NI experience.

3. Theories of Financial Crises

3.1 Mainstream Theories of Financial Crises

While many theories on financial crises have been developed over the past number of decades, the standard mainstream view of financial crises is underpinned by neo-classical theory. The macroeconomic models that embrace this approach are typically developed within a general equilibrium framework and are built on the assumptions that individuals behave rationally and markets are inherently stable. Crisis periods - if they can occur - are viewed as only temporary departures from equilibrium arising from unanticipated exogenous shocks. The recent crisis has illustrated this position can be strongly criticised both on philosophical (Foley, 2004) and methodological grounds (Dow, 2012). Evidence has shown these models can fail to anticipate major economic events and offer limited insight into how to effectively overcome them (Toporowski, 2010). As noted above, this has led to a renewed interest in alternative theories of financial crises, in particular those put forward by Minsky and later Kindleberger that focus more on the structural characteristics of capitalist economies.

3.2 Kindleberger's Theory of Financial Crises

Both Kindleberger's and Minsky's theories build on Keynes (1936) key insights however, as noted in the introduction Kindleberger's (1978) theory of financial crises could be viewed as an extension of a neo-Keynesian approach. This is because it represents an attempt to synthesis Keynes's key insights, on investment and the factors that determine it, with a neo-classical perspective. Underpinned by the IS-LM (Hicks-Hansen) model, the neo-Keynesian approach maintains that over the long run markets behave according to the neoclassical view tending towards equilibrium; while in the short run shocks may lead to disequilibrium and consequently markets may behave in a manner more consistent with Keynes's ideas. This position thus argues that with appropriate policy intervention an economy will behave according to general equilibrium theory on the most part.

Kindleberger's (1978) international theory of financial crises embraces these ideas, in his own words "markets generally work but occasionally they break down" (Kindleberger, 1978, p.6). According to Kindleberger (1978) a bubble is initiated from an exogenous shock or "displacement" to the macroeconomic system, the nature of which varies from crisis to crisis. This changes the economic outlook and brings new profit opportunities. An influx of heterogeneous investors – initially insiders and later outsiders - with overly-optimistic expectations characterise the rise period and create a self-fulfilling cycle in the short run (Passotti and Vercelli, 2015). Influenced by the "euphoria" and attempting to fulfil rising demand financial institutions increasingly finance risker investment. Consequently, price inflation continues until the peak when market expectations shift and some signal triggers a reversal in behaviour. Then the crash phase commences and as investors off-load their assets a sense of pessimism spreads. This causes asset prices to deflate. Kindleberger's (1978) theory thus attributes a key role to psychological factors and their influence on behaviours in driving a financial crisis.

3.3 Minsky's Theory of Financial Crises

Minsky does not adopt a Hicks-Hansen interpretation of Keynes's general theory but rather considers Keynes's theory to be an endogenous theory of financial crises. Adopting a Khan-Keynes view on money markets Minsky argues that financial instability plays a crucial role in the development of financial crises. As he stated "the missing step in the standard Keynesian theory is the explicit consideration of capitalist finance within a cyclical and speculative context...finance sets the pace for the economy" (Minsky, 1975, p.129). This position is outlined in his well-established FIH (Minsky 1975, 1986, 1992). In this, Minsky (1992) describes the changing nature of the relationship between capital, investment and finance over the course of the business cycle and argues that the increasing process of interconnectedness and indebtedness that occurs between economic agents (individuals, firms and intermediaries/real and financial sectors) gives rise to instability.

Minsky first identified three income-debt relationships that economic agents adopt which impact on the overall stability of an economy namely, hedge, speculative or Ponzi. In a hedge unit cash flow and income from investments are sufficient to fulfil any contractual obligations in every period (i.e. sufficient to repay debt and interest). A hedge unit's viability depends only on the normal functioning of the product and labour market from which it derives its cash flow (Pollin, 1997). Economic units that adopt a speculative position experience some periods when obligations exceed cash flows and income.

These units will usually be able to meet the payment commitments on the "income account" on their liabilities but often cannot repay the principal (Minsky, 1992, p.7). Such units depend on both the normal functioning of financial markets and the product and labour markets in which they are based to remain solvent (Pollin, 1997). For agents, that adopt Ponzi positions, in most periods, cash commitments are much greater than cash flows and they can neither repay the principal or interest on outstanding debts. Many of these unit's assets yield little or no income and are fully reliant on capital appreciation and the availability of debt for refinancing and sustaining their organisations. This position is the most fragile because as Pollin (1997, p. 81) notes these units are heavily "exposed to the vagaries of money markets". Minsky argues that the overall stability of an economy is dependent on the proportions of each of these units within it. If an economy dominated by hedge units then it is likely to be stable. In contrast, the higher the proportion of speculative and Ponzi units, the more unstable an economy as it will be less capable of absorbing shocks. Therefore, according to Minsky's view an economy has financing regimes under which it is a stable and financing regimes under which it is unstable.

Minsky also maintains that as a capitalist economy enjoys a prolonged period of prosperity it transitions to a financing regime that leaves it vulnerable (i.e. an economy characterised by a large number of speculative and Ponzi units). Beginning at the trough of the business cycle, Minsky (1982) explains that both realised profits and profit expectations remain at low levels because the downturn would have forced the majority of overleveraged units into bankruptcy. Consequently, borrowers and lenders remain cautious regarding debt/equity ratios and asset valuations and only finance conservative investment projects. At this point an economy is robust as it is characterised predominantly by hedge units. As new profit opportunities arise, the economy begins to ascend out of the trough and the recovery takes hold. A boom gets underway and realised profits increasingly exceed expectations, prompting agents to revise their future growth expectations. Eventually "animal spirits" similar to those described by Keynes (1936) are ignited and there is a decline in risk aversion further increasing investment and accelerating growth. Firms become increasingly more willing to borrow as speculation on assets is profitable and lenders more willing to lend in pursuit of profit opportunities. Hence the boom is fuelled and sustained by an expansion of credit which leads to an economy increasingly characterised by speculative and Ponzi units. The cycle continues underpinned by a sense of “euphoria” until the growth rate of debt outpaces that of profit. The system becomes increasingly more fragile and exposed to a debt deflationary downturn. Thus, according to Minsky a capitalist economy will repeatedly proceed through this cyclical process, in the absence of intervention, as a result of inherent dynamics. In Minsky’s (1992, p.6) own words; “the financial system swings between robustness and fragility and these swings are an integral part of the process that generates business cycles”.

3.4 A Comparison of the Alternative Theories

While studies often attempt to draw parallels between Kindleberger’s (1978) and Minsky’s (1975, 1986, 1992) theories on financial crises (Rosser et al., 2012; Rapp, 2009) there are major differences between their two viewpoints. These have important implications when it comes to analysing and modelling financial crises. Kindleberger views disequilibrium in markets as a temporary state arising from exogenous shocks which is more in line with the standard approach in economics (Passotti and Vercelli, 2015). Kindleberger’s approach thus represents an attempt to illustrate that Keynesian theory can encompass periods of explosion in the system. If this is the case, then traditional neo-classical based quantitative modelling techniques are appropriate most of the time. Whereas, Minsky does not view instability as a transient state but rather as an inherent feature of any capitalist economy. The central tenet of Minsky’s FIH is that capitalism is inherently unstable and that capitalist structures move from states of stability to fragility over the course of the business cycle. According to Minsky (1975, p.68) “Keynesian economics as the economics of disequilibrium is the economics of permanent disequilibrium”. Therefore, in Minsky’s view classical economics is of limited value as capitalist economies are too unstable to be modelled using traditional static equilibrium based quantitative techniques. In fact, Minsky (1975, p.40) described the IS-LM framework under which Kindleberger operates as an “unfair and naive representation of Keynes’s subtle and sophisticated views”. In line with Minsky’s position and given the unstable nature of NI house prices over the periods (discussed earlier in section 2), this paper adopts a qualitative approach in analysing the crisis in NI.

4. Methodology

Adopting a qualitative research methodology enabled the researchers to gather insights on the behaviours of key economic actors over the course of the business cycle in the NI context and to consider these in light of Minsky's theory. A series of semi-structured interviews were conducted with property developers (n=10) and bank managers (n=10). The sample of property developers consisted of actors of varying sizes operating across the region of NI. The sample of bank managers included senior managers from the credit departments of five major banks operating in NI over the period. The use of the two strata facilitated the triangulation of the findings. Interviews were conducted until additional data did not generate any new insights into the issue. The combined sample (n=20)[4] was deemed sufficient in size enabling the researchers to capture the behaviours of both lenders and borrowers operating in the region over the course of the business cycle.

Convenience sampling was used to secure the interviews. The researchers initially exploited their own personal networks and further secured interviews through adopting a chain referral or snowball sampling approach. This is a technique whereby respondents identify further participants who can inform the study based on their characteristics or knowledge of the research area (Bienacki and Waldorf, 1981). This approach is considered to be particularly applicable when recruiting "hard to reach" or "hidden" populations. It was therefore suitable in the context of this study as it involved accessing participants willing to discuss or disclose commercially sensitive and/or private matters.

To ensure consistency, standardised and well-structured interview protocols were developed in advance and utilised throughout the study. In the case of the property developers these contained a range of questions relating to firm characteristics, market behaviours and financing patterns both prior to 2007 and post 2007. In the case of the banks, these contained questions relating to market position, portfolio composition, lending products, policies and practices in regard to commercial lending prior to 2007 and post 2007. Given the nature of the research, the anonymity of the participants is maintained. The timeliness of the research, the use of the standardised interview protocols alongside robust interviewing techniques reduced the threat of recall bias among the participants.

All of the interviews were conducted face-to-face and ranged in length from 40 minutes to 2.5 hours. Each interview was digitally recorded and later transcribed verbatim. The interview transcripts were subject to thematic content analysis that closely followed the approach proposed by Ryan and Bernard (2003). This included pawing through the interview transcriptions and analysing the data using a variety of techniques including repetitions, indigenous typologies, metaphors and analogies, transitions, linguistic connectors, similarities and differences and key words in context.

The findings obtained from these interviews are outlined below. These findings are structured around timeframes identified through the narratives provided by the participants and serve to assist with identifying how behaviours altered over the course of the business cycle. In outlining the findings, a summary of the views expressed is provided alongside a series of quotes from the transcripts.

5. An Analysis of the Crisis in NI

5.1 The Behaviour of Property Developers and Banks: 1990s and early 2000s

All of the property developers interviewed (n=10) emphasised that during the 1990s and early 2000s their businesses were strong financially. They outlined solid investment strategies centred on purchasing land or property for development or rent as exemplified in the following responses; *"The strategy would have been to buy property or land, develop it and turn the property"* (PG6) and *"Our business was initially based on rent…Buy this, rent it out"* (PD5). Respondents stated, and most (n=7) illustrated through their financial records, that their businesses maintained robust cash flows capable of servicing any outgoings or debt commitments due to the nature of their business models.

Their financing arrangements appeared to remain largely conservative with most (n=7) having committed to loan-to-value (LTV) ratios of 70% or below or indicating that investments at this stage were only part debt financed. For example, one property developer explained, *"Prior to 2002-2003, anything you were purchasing was usually on a 70:30 split. The bank put in 70% and you were physically putting in 30% of whatever you were purchasing"* (PD2) while another stated, *"Back then there may have been a bit of bank money but it was mostly self-financed… part cash and part bank financed"* (PD5).

Interviews conducted with the banks also indicate that financial institutions, while increasingly active in the commercial property market, remained cautious. A number of the managers (n=4) commented that *"traditionally"* or *"prior to the 2000s"* LTV ratios at the commercial end had been more restrictive and offered up to a *"maximum of 70%"* or as one interviewee put it, *"70-75% was the maximum for everybody"* (BBI2). This illustrates the conservative nature of these economic agents regarding debt levels over this period also.

5.2 Behaviour of Property Developers and Banks: Early 2000s – 2004/2005

Key changes in the behaviours and financing patterns of the property developers were identified from early 2000. Firstly, seven of the developers indicated a shift in business model with increasing emphasis being placed on the probability of resale rather than development or rental potential. The buying and selling of land appeared to become a key feature of the market also with nine of the developers drawing attention to the escalating price due to increased demand. As illustrated in the following responses:

> *"Whenever, the property market took off, the money wasn't in building anymore. It was sort of in the buying and selling of it. Well, the easy money was anyways"* (PD5)
>
> *"I would sell on. What these boys [other developers] were giving. It wouldn't pay you to develop, the prices they were giving"* (PD1).

The primary reasons put forward for this behavioural change related to the increasingly competitive nature of the market due to the entry of new non-traditional or inexperienced actors. References to everyone *"jumping on the bandwagon"* or *"jumping on the gravy train"* were common among the developers in relation to post 2000. Three of the larger scale developers also discussed the increasing prevalence of the practice of flipping within the market. This is an approach whereby agents purchase land/property off plan and quickly re-sell at a premium rate. This is illustrated in the comment below:

> *"Flipping did happen a lot. Again with hindsight, it was probably one of the problems that we had with the period because in any one day, from being sold from the farmer to the end user, it could have gone through three sets of hands…. You know just paperwork…The value would have increased each time but in reality, it was only worth the first purchase price"* (PD2).

These behaviours both indicate an increasingly speculative market.

Financing patterns also changed significantly over this period. Post 2000 was described as *"the period of freer finance"* (PD2) with eight of the developers remarking that from this point in time they relied more heavily on debt finance and that they had *"no problem getting access to finance"*. The availability and use of higher LTV ratios and interest only loans became commonplace. For example, one developer described how he financed his activities over this period as follows: *"Mostly financed through bank lending, commercial. And mostly short term debt. It was mainly interest only but at the time there was no talk of whether they [the loans] were for 12 months or if they were for 10 years"* (PD1). Another developer referred to his interest-only roll-up facilities as *"anniversary letters"* (PD7) indicating his increased reliance on interest-only based debt financing instruments. Developers (n=5) also commented that their ability to repay the principle on the loans obtained over this period was in part contingent on property/land prices continuing to rise. For example, one respondent commented:

> *"Being interest-only allowed you to buy more because your payments were less…And because everything was going up you thought it's alright, it doesn't matter, you will be able to pay this off whenever you want"* (PD2).

The interviews with the bank managers provided further information regarding the shift in financing behaviours that occurred over this period. The majority (n=8) of the bank managers interviewed discussed the increasing concentration of lending in the property market and/or the gradual lowering of standards or relaxation of core policies in regard to commercial lending over this period. One neatly summarised the situation as *"I think every one of the banks was doing it. It was a bit of, if you weren't doing it, you weren't in the market or getting anything…everyone got caught up in the same excitement"* (BDI1). Five of the bank officials commented specifically on an increasingly lack of robustness in terms of the commercial credit assessment processes implemented and raised concerns regarding the ineffective screening and oversights. This is exemplified in the following responses;

> *"You found that a lot of lending that did go bad, when it came down to it there were other issues that arose. Maybe the paperwork wasn't quite right, maybe things were left out of the sanction letters, maybe the security wasn't taken properly and the charge in the property or land wasn't properly executed"* (BBI1)

> *"There may have been a bit of lethargy. There certainly was some complacency. There was overconfidence. So how deep did we go? In some cases, it was maybe just a case of if this guy wants to buy a £2million asset and if you put £500,000 with it, we will do the £1.5million- let's just get on with it"* (BAI3).

Similar to the property developers, bank managers also commented on the adoption of increasingly riskier products and policies post 2000. This behaviour change was nicely summarised by one individual who stated, *"there was a total shift in attitude to risk in the sector from that stage"* (BEI1). The rise of LTV ratios over this period towards 100% illustrates the change in risk appetite of lenders. This meant borrowers required little or no real commitment other than the underlying collateral and a common view among respondents was that this had enticed *"less experienced"* individuals into the marketplace and encouraged speculative behaviour. The increasing use of BTLs, demand and bridging loans with interest roll-up potential and the shift to risker asset value based lending (which were dependent on the continuing escalation of property and land prices) were also highlighted.

Interviews conducted with the banks indicated higher emphasis was placed on relationship building when assessing commercial clients' eligibility for loans post 2000. Interviewees (n=5) explained how often the relationship between the bank and the borrower took precedence over the predetermined lending criteria - again highlighting the speculative nature of the market. For example, one senior manager noted that *"a person's character and stuff was a bigger factor during the boom"* (BBI1) while another described how the potential for a long term relationship had adversely impacted on the bank's decision making as follows:

> *"There were certainly instances where we looked at deals and we approved loans based on customer relationship and based on looking at the long term relationship to a bank.…So if they had a large commercial business with us or other things then, we would have looked at maybe overriding the decision because something was going to come down the line that makes it affordable to them"* (BCI2).

Increasing competition amongst financial institutions due to the entrance and aggressiveness of foreign lenders in the market was the principle reason put forward for these changes. This is illustrated in the following remark:

"We had a lot of externals dipping their toes in the market like bossy [Bank of Scotland], RBS, HSBC and god knows who else but they wouldn't have been very prevalent on the ground. They would have had one guy bouncing around cold calling or making himself available and you would have had these companies making deals at low margins, relatively high LTVs and doing so at minimal contact" (BAI3).

5.3 The Behaviour of Property Developers and Banks: 2004 Onwards

The property developers interviewed, again indicated a change in investment strategy circa 2005 to what could be described as a *"buy to hold"* approach. Six of the respondents made reference to land banking and stock piling on a vast scale as exemplified in the following comments:

"It was just a matter of getting more stock, so that I am in control of that and that…It was sort of a hoarding of stock regardless of what you paid for it" (PD2).

"That is when the greed came in, from then on….it was just land bank, land bank, land bank." (PD6).

This approach involved delaying time to market capitalising on appreciation. For example, one developer recalled the moment he first adopted such an approach:

"We were selling houses but by the time we had them sold, the guy [original purchaser] was taking them and putting them on the market and getting £15,000 profit on each of them, even though it took us 6 or 7 months to build the houses. And when we realised that about 2006, we just wouldn't sell" (PD4).

A remark that is representative of the comments made by the six developers in this regard is as follows: "*the amount of profit would be reflected in the length of time that you held it [property or land]"* (PD2). Overall, the general consensus among the respondents appeared to be that the market was driven by speculation from the mid-2000s onwards and the rationale for the change in investment strategy was based on the perception that prices would continue to increase. It appeared that developers became completely reliant on capital appreciation to sustain their operations and to meet debt obligations. This is exemplified in the following comments:

"The price that was paid for land didn't work when we bought it but we reckoned that by next year houses would be up 20% so it will work out then. There was this sort of perception that things were just going to keep rising" (PD2).

> *"It was speculative in nature because the yields didn't add up. The rent wasn't covering the loans in most cases so you were purely basing it on capital appreciation…The capital appreciation was there before 2007 so it was all stacking up then…It was going up in value. You were doing a spreadsheet every month or whatever and it was going up and up…But you weren't evaluating risk at all. It sounds crazy but you weren't really looking at yields or anything. You were just thinking I will get out of this whenever I sell it in 6 months, a year or 2 years. I will make money of it and I think everyone sort of became conditioned to that mind set"* (PD5).

The consensus amongst the respondents was again that finance was more freely available over this period and there was a shift towards increased leverage and the use of riskier facilities. First, regarding increased availability, six developers described the ease of access and believed that bank staff were under pressure to lend and incentivised through various remuneration packages. For example, one developer commented, *"Just anybody that you rang up- everybody wanted to give you credit. The bank staff were on commission to get more loans out and were incentivised to do that"* (PD1). Others (n=5) described scenarios in which banks operating in the region actively pursued them to avail of finance. This signalled a corresponding shift in lender behaviour:

> *"There would have been no doubt that they were throwing money at you. I remember the relationship manager was going on a three-week holiday and he rang the day before he went to see if I needed money in case I decided to buy something while he was away"* (PD7).

> *"I recall one situation where I received a call basically to let us know that there was money there for us to spend. 'Is there anything you are looking at?' That type of thing, 'because you got more finance available here"* (PD2).

Secondly, the ability to borrow on equity was one of the recurrent themes that emerged and operated as follows*: "Land was increasing at a fairly rapid rate and if you had land in your portfolio, the banks would have taken the value of that land currently. So if it had increased in value that could be deemed as your equity in going to purchase other land"* (PD2). The increasing valuations of current assets resulted in the release of funds. The ability to lend on equity had the effect of making transactions feel more abstract or surreal and downplayed the risk attached. For example, interviewees commented:

> *"Lending on equity was the big thing. It was all on paper. It affected everybody. There was no money, it was all just written down on paper and climbing and climbing"* (PD4).

> *"It was all paper profits; it wasn't actually real. There was a lot of credit there but a lot of the stuff wasn't actually real money. I was sitting down working out exactly how much my portfolio was worth and it was nearly double from what I bought it but until you sold that, it was just paper money like. It wasn't actually real"* (PD5).

Others indicated the increasing appetite for risk across market participants by describing how developers began self-perpetuating prices in the marketplace so they could avail of more finance. To illustrate, one developer commented:

> *"Some people acted recklessly…One building company, they self-perpetuated the situation in certain areas. Say they bought a piece of ground and the next piece of ground that came up for sale in that area, they deliberately paid a lot more for it. And then they said to the bank, 'Well our first piece is now worth the same amount per acre'"* (PD2).

The increasing use of SPVs as vehicles to obtain non-recourse loans was another common theme to emerge. For example, one developer commented:

> *"There would have been a lot of that where each different purchase made, there would have been a company set up for that purchase and in a lot of cases were getting a 100% finance and then rolling the interest on it. So the banks left themselves totally exposed on that. I don't think you will see that again but it was quite prominent back then"* (PD2).

The interviews conducted with the lenders were also suggestive of more aggressive market behaviour from the mid-2000s onwards. Banks (n=5) also acknowledged an increased reliance on asset value based lending models: *"the problem with that type of lending as it turns out, and arguably as we should have known, is that there was absolutely no cash flow associated with it"* (BAI1) and *"It was all asset based lending meaning that there was no cash flow to cover it"* (BDI2). The availability of unsecured debt was also a common theme to emerge from the interviews. Four interviewees stated that loans, particularly those at the higher end of the scale and those provided near the end of the boom, were unsecured or supported only by personal guarantees (PGs). Those supported only by guarantees were viewed as particularly problematic in hindsight as there had been oversights regarding reliability and inadequate checks in terms of cross-collateralisation. This is exemplified in the following comment; *"One bank has led to another one and what you will find is that the person has gone to various different lenders. They have raised equity and then have got several PGs and one thing has paid of another"*

(BCI2). The increased use of interest roll-up facilities over this period was again raised and these bank officials emphasised how these products were almost entirely dependent on *"the ability to sell an asset rather than generate sustainable profits"* (BEI1). The use of interest roll-up facilities without due consideration of the implications and the issues surrounding PGs are again indicative of the laxer lending policies over this period.

The main findings and key behavioural factors that could be used as policy triggers in future are summarised below in Table 1.

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6. Discussion

The main findings of this study are consistent with Minsky's endogenous theory of financial crises which maintains that the pro-cyclical expansion and contraction of credit plays an essential role in the development and evolution of financial crises. More specifically, the qualitative accounts offered by the respondents highlight the interconnectedness of the financial and real sectors and, illustrate that the behaviours of key economic agents in NI altered over the course of the recent business cycle in the manner described in Minsky's framework.

At the trough of the business cycle taken as the 1990s, both the borrowers and lenders displayed characteristics consistent with hedge units as per Minsky's FIH (Minsky, 1992). Property developers demonstrated robust investment strategies and indicated that their debt-to-income levels remained relatively low with maximum LTV ratios of 70% the norm. The banks also showed hedge like behaviours. This was illustrated through their adoption of stringent lending policies and practices and portfolio diversification strategies.

However, from 2000 onward the transition to more speculative positions is apparent in the behaviours of these economic agents. The property developers altered their investment strategies and market practices placing less emphasis on income generation and more on capital appreciation. They described their increased reliance on debt financing in various forms with many holding the view that ease of access to debt finance was central to market inflation. These agents also drew attention to the entry of "inexperienced" individuals to the market and indicated that herding behaviours were present. These comments resonate with Minsky's references to "animal spirits" during the boom phase. The banks adoption of more speculative positions over this was apparent primarily in the increased concentration of lending in the property sector. Their increased focus on asset based lending, the introduction of more innovative products and the increasing use of relationship lending also fit with the behaviour of speculative units as per Minsky's FIH (Minsky, 1992).

As the end of the business cycle approached again the property developers and banks in NI signalled a shift toward more Ponzi positions. Through their "buy to hold" strategies, the property developers demonstrated their reliance on the continuation of capital appreciation in the property market to sustain their operations and more importantly to meet maturing obligations. Almost all of the property developers emphasised their increased use of debt, in particular through interest roll-up products and their abuse of lending on equity, to sustain their operations. Pollin (1997) identifies such behavioural traits as highly consistent with Minsky's Ponzi units. The banks also displayed characteristics consistent with Ponzi units. Alongside confirming that lending standards had further deteriorated over this period, the increasing prevalence of unsecured lending and interest roll-up facilities which were entirely dependent on capital appreciation was raised. Interestingly, the overarching reasons put forward by the lenders and borrowers for the decline in lending standards post 2000, related to increased competition and shareholder pressure in the sector. Again these further support Minsky's view that instability is created internally through the nature of the financial system.

Overall, the findings correspond well with Minsky's account in that the primary factors identified where endogenous and related to the internal dynamics of the capitalist financial structure. Although it could be argued that exogenous factors may have played an aggravating role, the interview findings conclude that these were not fundamental in the NI crisis. Rather the NI economy slowly transitioned to a financing regime as per Minsky's (1992) account that increased the fragility of the overall economy and left it vulnerable to a debt deflationary cycle. Therefore, as a consequence of the research a practical recommendation is the need for stricter policies regarding commercial lending, the implementation of more comprehensive risk management systems and overall a more robust supervisory framework to monitor the behaviours of financial institutions over the course of the full business cycle. These measures would enable policymakers and regulators to identify such shifts in behaviours much earlier thus to respond in a timely and appropriate manner.

7. Conclusion

This paper presents the results of a qualitative study investigating the relevance of Minsky's FIH in explaining the recent property crisis in NI. The findings show that Minsky's framework explains the incidents observed in NI's property market and highlights key triggers identified in the NI case. These key policy triggers could be adopted on a more general level to help identify an economy's position in relation to the business cycle and therefore, could act as early warnings in pre-empting future financial crises. Overall, this paper provides further support for Minsky's view (1992) that capitalist structures are inherently fragile and shift from states of stability to fragility overtime due to endogenous destabilising factors.

There are limitations to the analysis presented here as the focus is limited to the core of the FIH. Despite this, the behaviours documented are consistent with Minsky's framework suggesting there may be merit in considering Minsky's broader theoretical works in seeking to understand the NI crisis and more broadly, other financial crises. Specifically, Minsky (1996) discussed the slow transformation of the financial system towards what he termed "money market capitalism". This research identifies a need for a more comprehensive study of the NI case, similar to that undertaken by Wray (2009, 2011) in the US context, which takes into account historical developments including deregulation and other key changes in macroeconomic conditions.

Footnotes

[1] Based on population

[2] Previous studies have documented that the regional property markets of the UK tend to exhibit distinct behaviours (for example see MacLennan et al., 1994; Muellbauer and Murphy, 1997; Meen, 1999). These behaviours are typically attributed to heterogeneous regional housing markets, economic structures and varying local characteristics and are often amplified by homogenous UK government housing and monetary policies.

[3] During this period there were a number of house price indices measuring house price movements in NI. The peak-to-trough decline of over 50% (specifically 57%) documented here is based on the NI Residential Property Price Index (2007 Q3 – 2013 Q1) developed by LPS/NISRA and widely regarded as the most reliable since its development.

[4] While in quantitative studies asymptotic theory provides the basis for determining appropriate sample size for analysis, no similar framework for qualitative interview based studies exist (see Sandelowski, 1995; Malterud et al., 2016 for full discussion on this). In this context, while there continues to be much debate over what constitutes an appropriate sample size, in general sample sizes tend to be much smaller (Mason, 2010). In this study, interviews were conducted with members of each strata until additional data did not appear to shed much further light on the issue under investigation, i.e. until the point of diminishing returns/data saturation was reached (see Fusch and Ness, 2015 for a detailed account on data saturation in qualitative research). The final sample size of 20 was reached taking into account the scope of the study (aim), the nature of the topic (sensitive), the quality of the data extracted (richness of the data obtained from the convenience yet purposeful sampling), the overall study design and triangulation of the data (multiple strata in the sample).

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